Chloride Concentration in Water from the Floridan Aquifer System

Chloride concentration in water from the Floridan aquifer system has been monitored by the U.S. Geological Survey in Coastal Georgia since the 1950's. During 2002, 9 wells completed in the Upper and Lower Floridan aquifers and underlying units were pumped and sampled in the Savannah area. Data from these two areas indicate that chloride concentration generally increases with depth below land surface.

During 2002, 6 wells completed in the Upper and Lower Floridan aquifers and underlying units were pumped and sampled in the Savannah area. Water supply in the Brunswick area primarily is obtained from wells completed in the Upper Floridan aquifer. Intense pumping has reduced pressure in the aquifer and resulted in saltwater intrusion locally at Brunswick. Saltwater was first detected in the southernmost part of Brunswick during the late 1950s (Wait, 1965). Saltwater was migrating upward from deep saline zones through breaches in confining units as a result of reduced pressure in the aquifer. By the 1960s, a plume had migrated northward toward two major industrial pumping centers. Currently (2002), chloride concentration in water from the Upper Floridan aquifer is above State and Federal secondary drinking-water standards (Georgia Environmental Protection Division, 1997; U.S. Environmental Protection Agency, 2000) in a 2-square-mile area in downtown Brunswick, and exceeds 2,250 milligrams per liter in part of the area. More information on the Brunswick area monitoring can be accessed at URL: http://ga2.er.usgs.gov/Brunswick.

References Cited

Georgia Environmental Protection Division, 1997, Secondary maximum contaminant levels for drinking water: Environmental Rule 391-3-5-19, revised October 1997: Official Code of Georgia Annotated Statutes, Statute 12-5-170 (Georgia Safe Drinking Water Act), variously paginated.

U.S. Environmental Protection Agency, 2000, Maximum contaminant levels (Part 143, National Secondary Drinking Water Regulations): U.S. Code of Federal Regulations, Title 40, Parts 100-149, revised as of July 1, 2000, p. 612-614.

Wait, R.L., 1965, Geology and occurrence of fresh and brackish ground water in Glynn County, Georgia: U.S. Geological Survey Water-Supply Paper 1613-E, 94 p.